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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/676,256	10/02/2003	Tomoaki Takahashi	Q77811	3471
23373	7590	05/26/2005	[REDACTED]	[REDACTED] EXAMINER
SUGHRUE MION, PLLC 2100 PENNSYLVANIA AVENUE, N.W. SUITE 800 WASHINGTON, DC 20037			MRUK, GEOFFREY S	[REDACTED]
			ART UNIT	PAPER NUMBER
			2853	

DATE MAILED: 05/26/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

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<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/676,256	TAKAHASHI, TOMOAKI	
	Examiner Geoffrey Mruk	Art Unit 2853	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 25 June 2004.  
 2a) This action is FINAL.                    2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-13 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) Claim(s) \_\_\_\_\_ is/are allowed.  
 6) Claim(s) 1-6 is/are rejected.  
 7) Claim(s) 7-13 is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on 02 October 2003 is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>25 June 2004</u> . | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
|   | 6) <input type="checkbox"/> Other: _____                                    |

## DETAILED ACTION

### *Drawings*

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: Figure 2 is missing element 38. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Figures 16 and 17 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Specification***

The disclosure is objected to because of the following informalities:

Page 9, lines 5-6 state, "FIG. 3 is a sectional view of the line A-A shown in FIG. 1". Figure 1 does not contain a line A-A.

Appropriate correction is required.

***Claim Objections***

Claims 5 and 6 are objected to because of the following informalities:

With respect to claim 5, lacks antecedent basis for the term "base member".

With respect to claim 6, the claim states, "a rear of said integrated circuit is fixed to said base member at least partially". In light of the specification, it is unclear exactly how the integrated circuit is fixed to the base member.

Claims 7-13 are objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim should refer to other claims in the alternative only and cannot depend from any other multiple dependent claim. See MPEP § 608.01(n). Accordingly, the claims have not been further treated on the merits.

Appropriate correction is required.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-5 are rejected under 35 U.S.C. 102(b) as being anticipated by Hosono et al. (US 5,381,171).

With respect to claim 1, Hosono discloses a liquid ejecting apparatus (Column 1, lines 11-20) comprising

- a liquid ejecting head (Fig. 1) having a plurality of nozzle openings (Fig. 1, element 2) for ejecting liquid drops arranged in line, wherein said liquid ejecting head has a flow path unit (Fig. 1, element 14) having a plurality of pressure chambers (Fig. 1, element 6) respectively interconnected to said plurality of nozzle openings,
- a plurality of elastic walls (Fig. 1, element 5) for respectively forming one face of each of said plurality of pressure chambers, and
- a nozzle plate (Fig. 1, element 1) where said plurality of nozzle openings are formed and
- a piezoelectric actuator unit (Fig. 1, element 7) which includes a plurality of piezoelectric vibrators (Fig. 3B, element 22) respectively joined to said plurality of elastic walls via insular parts, deforms said elastic walls by deformation of said

piezoelectric vibrators, and changes the volume of said pressure chambers  
(Column 3, lines 36-52),

- said plurality of piezoelectric vibrators are respectively formed by alternately laminating piezoelectric material layers (Column 3, lines 18-35) and electrode layers (Fig 3B, elements 20, 21) and have active parts (Fig. 3B, element 15) capable of performing piezoelectric deformation which are joined to said elastic walls, and
- said piezoelectric actuator unit further has a pair of unit fixing parts (Fig. 3B, element 8) installed on both sides of said active parts in a vibrator width direction perpendicular to an arrangement direction of said plurality of nozzle openings, and
- said pair of unit fixing parts are joined to parts other than said plurality of elastic walls of said flow path unit, thereby said piezoelectric actuator unit is fixed to said flow path unit (Column 3, liners 66-68; Column 4, lines 1-26).

With respect to claim 2, Hosono discloses at least one of said pair of unit fixing parts (Fig. 3B, element 8) comprises a plurality of inactive parts incapable of performing piezoelectric deformation (Column 4, lines 31-34) formed integrally with said active parts (Fig. 3B, element 15) in said vibrator width direction as a part of each of said plurality of piezoelectric vibrators.

With respect to claim 3, Hosono discloses at least one of said pair of unit fixing parts (Fig. 3B, element 8) comprises a fixing member (Fig. 3B, element 13), which is formed

as a separate member from said plurality of piezoelectric vibrators (Fig. 3A, element 9) and is joined to said plurality of piezoelectric vibrators (Column 3, lines 1-17).

With respect to claim 4, Hosono discloses said fixing member (Fig. 3B, element 13) is joined to said plurality of piezoelectric vibrators (Fig. 3B, element 9) via a base member joined to said plurality of piezoelectric vibrators (Column 3, lines 1-17). Hosono does not explicitly show a base member in the first embodiment (Figures 1-4A). However, a base member is disclosed in the fifth embodiment (Figure 12, element 84).

With respect to claim 5, Hosono discloses said plurality of piezoelectric vibrators (Fig. 3B, element 9) are respectively formed independently and are integrally fixed by said base member. Hosono does not explicitly show a base member in the first embodiment (Figures 1-4A). However, a base member is disclosed in the fifth embodiment (Figure 12, element 84).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hosono et al. (US 5,381,171) in view of Cuhat et al. (US 6,664,716 B2).

Hosono discloses liquid ejecting apparatus according to claim 4 or 5.

Hosono fails to disclose a tape carrier package electrically connected to said plurality of piezoelectric vibrators, wherein said tape carrier package includes an integrated circuit for driving said plurality of piezoelectric vibrators and a rear of said integrated circuit is fixed to said base member at least partially.

Cuhat discloses a flexible printed circuit used to connect the active components (Column 4, lines 54-61) and an integrated circuit (Fig. 4).

At the time of the invention, it would have been obvious to one of ordinary skill in the art to use the flexible printed circuit disclosed by Cuhat in the ink-jet recording head of Hosono. The motivation for doing so would have been "the use of a flexible printed circuit in the present invention makes it easier to connect the active components mounted on the structure to the external electronic circuitry" (Column 4, lines 54-61).

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Geoffrey Mruk whose telephone number is (571) 272-2810. The examiner can normally be reached on 7am - 330pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Meier can be reached on (571) 272-2149. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

GSM  
5/19/2005

GM

 5/23/05  
MANISH S. SHAH  
PRIMARY EXAMINER